Department of Energy

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OCT 28 1997

DOE-0099-98

Mr. Gene Jablonowski, Remedial Project Manager
U.S. Environmental Protection Agency
Region V-SRF-5J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911

Dear Mr. Jablonowski and Mr. Schneider:

RESPONSE TO THE OHIO ENVIRONMENTAL PROTECTION AGENCY AND U.S. ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON DRAFT EXPLANATION OF SIGNIFICANT DIFFERENCES FOR OPERABLE UNIT 4 SILO 3 REMEDIAL ACTION

Reference:

1. Letter, Schneider, OEPA, to Reising, DOE-FEMP, "Conditional Approval - OU4 Silo 3 ESD Draft Final Comments," dated September 22, 1997.

2. Letter, Jablonowski, U.S. EPA, to Reising, DOE-FEMP, "Silo 3 ESD Disapproval," dated October 16, 1997.

3. U.S. EPA Region V, "Agreement Resolving Dispute Concerning Denial of Request for Extension of Time for Certain Operable Unit 4 Milestones," Administrative Docket Number V-W-90-C-057, dated July 22, 1997.

Enclosed for your review and approval is a response to comments on the draft Explanation of Significant Differences (ESD) for Operable Unit 4 (OU4) Silo 3 Remedial Action (References 1 and 2). The enclosed comment responses reflect the discussions between the Department of Energy, Fernald Environmental Management Project (DOE-FEMP), Fluor Daniel Fernald, Inc. (FDF), U.S. Environmental Protection Agency (U.S. EPA), and Ohio Environmental Protection Agency (OEPA) during the October 24, 1997, conference call. Also enclosed is a revised draft ESD incorporating responses to your comments.

Recycled and Recyclable

Upon receipt of your approval of the draft ESD, a draft Final ESD will be issued for formal public comment. A responsiveness summary, documenting all comments received from the U.S. EPA, OEPA, and the public, and responses to the comments, will be included as an enclosure to the Final ESD. As you are aware, it is our desire to initiate the public comment period by mid-November 1997 in order to allow time for public review in advance of the November 25, 1997, FEMP public meeting and the December 2, 1997, Nevada Test Site Citizens Advisory Board (NTSCAB) meeting.

In accordance with the referenced settlement agreement, a revised Remedial Design Work Plan (RDWP) for Silo 3, including appropriate milestones for design and remedial action planning documents, will be developed within 60 days of finalization of this ESD.

If you have any questions, please feel free to contact Nina Akgündüz at (513) 648-3110.

Sincerely,

Wayne Pasko

for Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP: Akgündüz

Enclosures: As Stated

cc w/encs:

N. Hallein, EM-42/CLOV
B. Barwick, USEPA-V
J. Saric, USEPA-V, SRF-5J
R. Beaumier, TPSS/DERR, OEPA-Columbus
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F. Bell, ATSDR
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RESPONSE TO U.S. EPA AND OEPA COMMENTS
DRAFT EXPLANATION OF SIGNIFICANT DIFFERENCES FOR OPERABLE UNIT 4 SILO 3 REMEDIAL ACTION

1) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: General Comment Pg#: Line#: Code: C
Original Comment #: 1

Comment: DOE should include ARARs addressing additional air pollutants that may occur due to the consideration of potential treatment methods. Currently, ARARs for particulates are included, but OEPA feels that ARARs for organics and other potential pollutants should be added.

Response: The current Operable Unit (OU) 4 ARARs will require the design of the Silo 3 stabilization facility to apply Best Available Technology (BAT) to control air pollutants. Pollutants such as organics would be regulated through application of BAT, as defined by the Ohio EPA Air Toxics Policy.

The subcontractor selected for the Silo 3 Waste Project will be required to develop an Environmental Control Plan as part of the Operations Workplan to be submitted for U.S. EPA and Ohio EPA review prior to mobilizing the subcontractor for construction. The Environmental Control Plan will detail the specific pollutants expected to result from the selected treatment process, and will define the controls to be applied to meet applicable ARARs and substantive permit requirements.

Action: None required

2) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 2.3 Pg#:5 Line#:27 Code: C
Original Comment #:2

Comment: In the August 21, 1997 version of the draft ESD, the document states the OU4 Remedial Design Workplan was approved by U.S. EPA on June 16, 1996. In the September 9, 1997 document the text states that the U.S. EPA approved the document on June 15, 1995. Please provide clarification of this date.

Response: The OU4 Remedial Design Workplan was approved by U.S. EPA on June 15, 1995. The June 16, 1996 date stated in the August 21, 1997 draft of the ESD was an error.

Action: None required.

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3) Commenting Organization: Ohio EPA Commentor: OFFO
Section #: 3.5 Pg#: 28 Line#: 15 Code: C
Original Comment #: 3

Comment: This paragraph describes the option of pretreatment of Silo 3 wastes for transportation to an off-site treatment facility. DOE should specify that the offsite facility must be permitted for treatment and disposal of this material. Any facility under consideration should have experience with similar types of wastes.

Response: If a decision were made to employ offsite treatment, having appropriate permits in place, and commercial experience with similar types of waste, would both be evaluated as part of the proposal evaluation process.

Action: The referenced paragraph has been revised to define offsite treatment as '... transportation to an appropriately permitted offsite facility for treatment...' (See page 37, lines 12-13.)

4) Commenting Organization: U.S. EPA Commentor: Saric
Section #: N/A Pg#: N/A Line#: Code:
Original Comment#:1

Comment: The draft explanation of significant differences (ESD) document provides reasonable explanations about why various alternate remedial actions were eliminated from further consideration. However, the ESD should more thoroughly and definitively explain why the remedial action selected in the Record of Decision (ROD) was eliminated (see Original Specific Comment No. 2). The text of the ESD should be revised to address this issue.

Response: Comment accepted.

Action: Section 1.2 has been expanded to provide more detail on the basis for DOE's decision to reevaluate treatment options for Silo 3 waste and ultimately to recommend implementation of an alternate remedy. (See page 1, line 18 through page 2, line 29, and page 8 lines 10-12).

5) Commenting Organization: U.S. EPA Commentor: Saric
Section #: N/A Pg#: N/A Line#: N/A Code:
Original Comment#: 2

Comment: The text contains numerous references to the December 26, 1996, "melter incident." Use of the word "incident" does not adequately reflect the final outcome of the vitrification pilot plant (VitPP) project. The word "incident" should be replaced by a word or phrase that more specifically refers to the failed performance of the melter and its overall effect on the outcome of the VitPP project.

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Response: As described in Section 1.2 of the ESD, the need to reevaluate the technical path forward was originally identified due to technical schedule delays and cost increases identified early in the VITPP program. Initial evaluations of Silo 3 Alternatives were presented to U.S. EPA, Ohio EPA and other stakeholders at a public meeting on August 20, 1996. Initiation of the Silos Project Independent Review Team, and the Draft Final Evaluation of Silo 3 Residues Alternatives" also occurred prior to December 26, 1996.

Failure of melter hardware on December 26, 1996 confirmed previously identified technical issues associated with the combination of glass composition, melter design, and operating conditions present in the VitPP program. Evaluation of the event, as documented in the 'Vitrification Pilot Plant Melter Incident Final Report,' supported the decision not to restart the VitPP for further testing.

Action: The word 'incident' has been replaced with the phrase 'failure of melter hardware.' Additional description of the events of December 26, 1996 and their context in DOE's decision to identify an alternate remedy for treatment of Silo 3 waste has been added to Section 1.2. (See page 2, lines 9-12 and lines 21-28).

6) Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.2 Pg#: N/A Line#: N/A Code:
Original Comment#: 3
Comment: The text provides an overview of chemical stabilization technologies successfully implemented at the site. The text should be revised to provide information, including quantitative information, regarding the implementation of these technologies to treat similar waste streams at other sites.

Response: Comment accepted.

Action: Information regarding implementation of stabilization/solidification technologies to treat similar waste streams at other sites has been added to Section 3.2 (see page10, line14 through page 11, line 26) .

7) Commenting Organization: U.S. EPA Commentor: Barwick
Section #: 1.4 Pg#: 3 Line#: N/A Code:
Original Comment#: 4
Comment: A list of documents which form the basis for this ESD must be included. The list of references may serve this purpose but should be reviewed to determine if it includes all appropriate documents. In addition, a sentence should be added to Section 1.4 explaining that the list of administrative record documents supporting this ESD is included as the list of references.

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Response: Section 7 has been reviewed for completeness and provides a comprehensive list of documents supporting the ESD.

Action: The recommended text has been added to Section 1.4 referring the reader to Section 7 (page 3, lines 26-27).

8) Commenting Organization: U.S. EPA Commentor: Barwick
Section #: 3.3 Pg#: 10 Line#: N/A Code:
Original Comment#: 5
Comment: The measure for whether a change can be documented via an ESD is whether the new remedy meets the performance standards of the existing remedy and not merely whether the new remedy could have been selected under the NCP. U.S. DOE has adequately addressed this on pages 29 through 31 but, due to the organization of the document, it is not clear. This section needs to be revised to illustrate that the new remedy will at least meet the performance standards for vitrification.

Reference to the NCP screening criteria may be helpful in explaining how U.S. DOE examined various options but those criteria are not the controlling factors. This ESD must specifically set forth the performance criteria for vitrification. The various remedies must then be compared to those performance standards and only those remedies found to be at least equivalent to the existing remedy may be implemented via an ESD. Remedies that cannot meet this standard could only be implemented through a ROD amendment.

This section needs to be restructured to more specifically list the performance standards of vitrification and clearly explain the evaluation process. For example, in Table 11, "Waste will packaged in a manner that minimizes exposure during transportation" should be something like, "waste will be packaged in a manner which ensures that no individual will be exposed to any greater does than [insert the dose estimated for vitrified materials], which was the estimated does in the OU 4 ROD." The ESD should be revised to more thoroughly discuss the OU 4 ROD." The ESD should be revised to more thoroughly discuss the OU 4 ROD performance standards.

Response: The OU4 FS evaluated several alternatives for stabilization / solidification of Silo 3 waste, including vitrification and cement stabilization, which is representative of a wide range of chemical stabilization/solidification-type technologies. The FS found that both vitrification and cement stabilization successfully met all RAOs and treatment objectives for Silo 3 waste.

After screening 11 potential technologies against criteria based upon

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the National Contingency Plan (NCP) Initial Screening of Alternatives Criteria, eight technologies were judged to not warrant further evaluation, primarily for technical implementability and/or cost reasons. Based primarily upon evaluations documented in the OU4 FS, the remaining three technologies were judged to be equivalent to vitrification with respect to the Silo 3 Remedial Action Objectives and are therefore acceptable for evaluation through an ESD. These three technologies were then carried forward for detailed evaluation.

Action: A detailed discussion comparing chemical stabilization/solidification and polymer-based encapsulation to vitrification, with respect to the Silo 3 RAOs and treatment objectives, has been added to Section 3.4 (page 23, line 25 through page 24 line 20, as well as Table 5). Reference to this discussion has been added to Section 3.3 (page 12, lines 19-21).

9) Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.5 Pg#: 28 Line#: N/A Code:
Original Comment#: 6
Comment: The proposed remedy described in the ESD encompasses both on-site and off-site treatment of Silo 3 waste. The ESD does not provide an adequate analysis of the off-site treatment option because discussion of transportation risks is limited to transportation of material that has undergone full treatment. The ESD does not adequately address safety concerns associated with shipping partially treated material. The ESD should be revised to specify required on-site pretreatment and packaging activities associated with shipment of partially treated material.

Response: In order to be acceptable as part of the recommended alternate remedy for Silo 3 waste, offsite treatment must be preceded by onsite pretreatment to reduce dispersability of thorium-bearing particulates and, in combination with packaging in accordance with DOT requirements, result in a transportation risk less than 1×10^{-6}.

Action: The referenced text has been revised to clarify the requirements for onsite pretreatment (page 37, lines 9-17).

10) Commenting Organization: U.S. EPA Commentor: Barwick
Section #: 3.5 Pg#: 2 Line#: 23 Code:
Original Specific Comment#: 1
Comment: Insert "and performance standards" after "remedial objectives."

Response: Comment accepted.

Action: Text revised as recommended (page 30 line 26).

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11) Commenting Organization: U.S. EPA Commentor: Barwick
Section #: 2.2 Pg#: 5 Line#: 24 Code:
Original Specific Comment#: 2
Comment: U. S. DOE needs to clarify that this ESD concerns only a change in management of the Silo 3 contents and that other elements of the selected remedy related to silo structures, soils, perched groundwater, etc.. are not being altered in any way.

Response: Comment accepted.

Action: Text revised as recommended (page 6, lines 21-23).

12) Commenting Organization: U. S. EPA Commentor: Saric
Section #: 3.1 Pg#: 7 Line#: N/A Code:
Original Specific Comment#: 3
Comment: The text discusses the proposed separation of the Silo 3 waste treatment process from the K-65 (Silos 1 and 2) waste treatment process. The text should include more detail regarding the inherent difficulties of vitrifying Silo 3 waste materials and provide an obvious justification for separating the treatment processes. For example, the text should include additional technical information about the difficulties associated with vitrifying a material with high sulfate and lead contents. In addition, the text should emphasize that the theoretical difficulties associated with vitrifying this type of waste were confirmed through the attempted vitrification of surrogate materials similar to Silo 3 waste materials. Finally, the text should clarify that mixing Silo 3 wastes and the K-65 wastes will not make vitrification of the mixture possible.

Response: Comment accepted.

Action: Section 3.1 has been revised to clarify the details discussed in the comment (page 8, line 3 through page 9, line 28) . See also response to Original General Comment No. 1.

13) Commenting Organization: U. S. EPA Commentor: Saric
Section #: 3.3 Pg#: 10 Line#: 11 Code:
Original Specific Comment#: 4
Comment: The text states that oxidization and calcination are the same process. Actually, calcination refers to roasting or dry heating that may be conducted in an oxidizing or reducing atmosphere. The text should be corrected to refer to "oxidization by calcination" to correctly identify the process that generated the waste.

Response: Comment accepted.
Action: Text revised as recommended. (page 13 line 2).

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14) Commenting Organization: U. S. EPA Commentor: Barwick
Section #: 3.3 Pg#: 12 Line#: 2 Code:
Original Specific Comment#: 5
Comment: U.S. DOE needs to explain that stabilization/solidification alternatives that would significantly exceed the cost estimated for Silo 3 in the OU 4 ROD could only be selected through a ROD amendment.

The amount of the OU 4 ROD estimate should be specifically included in this ESD as a limiting factor.

Response: Comment accepted.

Action: A comparison of estimated cost has been included in the comparison of alternatives relative to Silo 3 RAOs and treatment objectives added in response to Original General Comment No 5. In addition, text has been added to Section 3.3 specifically stating that an alternate remedy that had a significant difference in cost compared to the original selected remedy would have to be evaluated through a ROD amendment (page 12, lines 15-19, and page 29).

15) Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.5 Pg#: 28 Line#:15 through 19 Code:
Original Specific Comment#: 6
Comment: The text does not provide an adequate analysis of transportation risks associated with the offsite treatment option. The text should explain that if the off-site treatment option is selected, on-site pretreatment and packaging will be required to reduce the risk of exposure to shipped materials. The text should specifically address the prevention of thorium dust dispersion during transport of Silo 3 wastes.

Response: Comment accepted.

Action: See response to Original General Comment No. 6.

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